

**REPETITIVE HIGH-DENSITY PACKING MECHANISMS FOR
ARRANGING SUSPENDED LENGTHS OF ELONGATED ITEMS IN A
DESIRED ORIENTATION AND ASSOCIATED METHODS**

Related Applications

This application is a divisional of U.S. Application Serial No. 10/171,862, ~~pending~~ filed June 13, 2002, the contents of which are hereby incorporated by reference as if recited in full herein.

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Field of the Invention

The present invention relates to handling of products within processing facilities and is particularly suitable for loading lengths of products such as elongated extruded or stuffed food products on carriers in food preparation and production systems.

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Background of the Invention

Conventionally, extruded or stuffed food products such as pasta, dough, and meats such as hot dogs, links, or sausages, can be processed so that the desired food material is extruded or mixed and prepared, then propelled through a "stuffer machine" that includes a stuffing nozzle, extrusion machine, or co-extrusion machine.

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In operation, in certain food items, as the food moves through the stuffing nozzle or extrusion head, a natural or synthetic casing is disposed about and/or deposited or wrapped around the external surface of the food material to form a continuous length of encased elongated food product. To form certain products (such as hotdogs and sausages), the casing can be twisted, tied, nipped, and/or crimped at certain intervals,

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forming a chain-like string or strand of encased food product. Extruders and co-extruders are available from various commercial manufacturers including, but not limited to, Townsend Engineering Co., located in Des Moines, Iowa. Stuffers are available from various commercial manufacturers including, but not limited to, HITEC Food Equipment, Inc., located in Elk Grove Village, Illinois, Townsend

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Engineering Co., located in Des Moines, Iowa, Robert Reiser & Co., Inc., located in Canton, MA, and Handtmann, Inc., located in Buffalo Grove, Illinois. Exemplary stuffer and/or linker apparatus are also described in U.S. Patent Nos. 5,788,563;